Quality Control

Work Order Friday, September				*10	700)N*						Page 1
Revision ID:	2327-1 acer Bushing			Accept	*N	1900	040	100)* s	etup Star Stop	ı	S1*
	3/2013 S	Start Qty: 20.00 Req'd Qty: 20.00	*20* *20*			Cust Item II Customer:	D:			Stop	*N	S2*
	rocess Plan: C:		Date: <u> 309- 3</u> Date:	Tooling: SPC (Y/N):		Da		1	R R	un Star Stop	IV	R1* R2*
Sequence ID/ Work Center ID		peration escription		Set Up/ Run Hours		Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr D2327	Revision Rev D	on Nbr					House,		, ,		and the second s	
*100 *100* Hardinge Hardinge CNC Lathe Sm		ardinge CNC LATHE Memo Turn per Fo	SMALL olio FA232 and Dwg D2327	0.00 0.00 Deburr BOTH ENDS	OAS -40,	13/0	09/17		20	Ø		
*110 *110* QC Quality Control	Q	C2- Inspect parts off n Memo	nachine FAI/FAIB	0.00	AS)	13/09	17		20			
120 *1 20* QC	Qu	C8- Inspect parts - sec Memo	ond check	0.00	۵.۵	13/09	18		20	<i>b</i>		DA S 08

		-
DQA:	Date:	

NCR-Yes / No

WORK ORDER NON-CONFORMANCE / UPDATE

recit.	C3 / 110								QA Closed:	Date	
Work Orde	rr:				DISPOSITION			AGAINST DE	PARTMENT	/PROCESS	
					Rework	1	Skid-tube	Crosstube	1	Water Jet	Engineering
Part N	lo.				Scrap	†	Machining	Small Fab	Pro	d. Eng. Coor.	Quality
					Use-as-is	-1 1	noforming	Finishing	-1	re/Packaging	Other
NCR N	lo				Work Order Update]	Large Fab	Composite		Supplier	
Root				Descri	ption of work order update	Initial	A	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data											
quip/Tooling											
Operator											
Material [
Setup											
Other		1									
Process											
Supplier											
Fraining											
Jnapproved		1			•						
_					F	AULT CATE	GORY				
Landir	ng Gear				General				_		
	Bending				Bend	Grain			Ovalized		Pressure/Forced
	Centre No	ot Concei	ntric to	o/s Γ	BOM/Route	Hardwa	are		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged	Inspect	ion Incomplete		Part Incorre	ct	Weld
	Crushed/	Crimped			Burrs	Instruct	tions Incomplete,	/Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
	Cuffs				Contamination	Mainte	enance		Part Moved		-
	Heat Trea	at			Countersink	Mislabe	eled		Positioned V	Vrong	
	Inspectio	n Strip in	Tube		Cut Too Short	Misrea	d		Power Loss/	Surge	Other
·	Ripples in				Drill Holes	Offset			-		
	Torque W		extrusio	n	Drawing	Out of	Calibration				
	Turning S				Finish	Out of	Sequence				
	Wave/Tw	vist in Tub	oe .		Folio	Outside	e Dimensions				

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Work Orde Friday, Septemb				*107	7000*						Page 2
Item ID: Revision ID: Item Name:	D2327-1 Spacer Bushi	ng		Accept	*N900	040	100)*	Setup St		NS1* NS2*
Start Date: Required Date: Reference:	9/13/2013 9/20/2013	Start Qty: 20.00 Req'd Qty: 20.00	*20 *20		Cust Item I Customer:	ID:					INO.
Approvals:	Process Pla	an:	Date:	Tooling: SPC (Y/N):		ate:		j	Run Sta Sto	•	NR1*
Sequence ID/ Work Center II 130 *120* Packaging Packaging	· .	Operation Description Identify as per dwg & Sto Memo *****STOCI	ck Location: WAC	Set Up/ Run Hours 0.00 0.00	Tool ID	Tool#	Plan Code	Accept Qty	Reject Qty	Reject Num	-

0.00

0.00

QC21- Final Inspection - Work Order Release

Memo

140

*14**0***

Quality Control

M/B/12-0920 W/3920

111

										DQA:	Date:	
NCR: Y	es / No				WORK ORDER NON-O	O	NFOR	MANCE / UP	DATE			
										QA Closed:	Date:	
Work Orde	ė.				DISPOSITION				AGAINST DE	PARTMENT	/PROCESS	
WOIK OIGE	'· 				Rework	1		Skid-tube	Crosstube	1	Water Jet	Engineering
Part N	0				Scrap	1		Machining	Small Fab	Pro	d. Eng. Coor.	Quality
, are in	·		<u> </u>		Use-as-is	1		noforming	Finishing	4	re/Packaging	Other
NCR N	0.				Work Order Update	1		Large Fab	Composite	1	Supplier	
					· · · · · · · · · · · · · · · · · · ·					-		·
Root				Descri	ption of work order update	T	Initial	Ac	tion	Sign &		
Cause	Date	Step	Qty	C	or Non-conformance	Ch	ief Eng	Desc	ription	Date	Verification	QC Inspector
Doc/Data												
Equip/Tooling												
Operator]		,				
Material						ł						
Setup		250										
Other		35°										
Process		. S €				ļ						
Supplier						ļ						
Training												
Unapproved]					<u></u>	
					<u> </u>	AUL	T CATE	GORY				
Landin	g Gear				General	_	1			7		1
_	Bending			_	Bend		Grain		<u></u>	Ovalized	<u></u>	Pressure/Forced
	Centre N	ot Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		inspect	ion Incomplete		Part Incorre	<u> </u>	Weld
	Crushed/	'Crimped			Burrs		Instruct	ions Incomplete/	Unclear	Part Lost/Mi	issing	Wrong Stock Pulled
	Cuffs				Contamination		Mainte	enance		Part Moved		
Γ	Heat Tre	at			Countersink		Mislabe	eled		Positioned V	Vrong	

Misread

Out of Calibration

Out of Sequence

Outside Dimensions

Offset

Other

Power Loss/Surge

ham

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Inspection Strip in Tube

Torque Waves in Extrusion

Cut Too Short

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Friday, September 13, 2013 10:38:43 AM

Page 1

Work Order ID: 107000

107000

Parent Item:

D2327-1

D2327-1

Parent Item Name:

Spacer Bushing

Start Date: 9/13/2013

Required Date: 9/20/2013

Start Qty: 20.00

Required Qty: 20.00

Comments:

IPP D05.11.02Removed 303 SSKJ/EC

IPP Rev:E

Removed 303SS JLM

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M304R0.375		Purchased	No			100	f	23.8770	0.1771	3.728421			
M304R0 304 ROUND BAR 0.375	375								**		OAS 40 9-89	13/	07/19

Location	Loc Qty	Loc Code	
MAT029	23.877		
125585	1.364		
→ M126153	22.513		3.75

								•		DQA:	Date:	400
NCR: Y	es / No				WORK ORDER NON-O	COI	NFORM	MANCE / UP	PDATE	QA Closed:	Date:	,
		<u> </u>			DISPOSITION				AGAINST DE			-
Work Orde	er:					_			Adalitsi DE	TANTIVILITI	, r NOCL33	
Part N	lo				Rework Scrap			Skid-tube Machining	Crosstube Small Fab	-1	Water Jet d. Eng. Coor.	Engineering Quality
NCR N	lo				Use-as-is Work Order Update	_		noforming Large Fab	Finishing Composite	Kec/Stoi	re/Packaging Supplier	Other
Root				Descri	ption of work order update		Initial	Ac	ction	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Cr	nief Eng	Desc	cription	Date	Verification	QC Inspector
Doc/Data						Г						
Equip/Tooling		, .				1.						
Operator [İ]		
Material [l								·
Setup		1										
Other												
Process			'			İ						
Supplier	1											
Training										1		
Unapproved												
					F	AUI	T CATE	GORY				
Landir	ng Gear				General				· .	_		
	Bending				Bend		Grain			Ovalized		Pressure/Forced
	Centre I	Not Conce	ntric to	o/s	BOM/Route		Hardwa	re		Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		Inspecti	on Incomplete		Part Incorred	ct	Weld
	Crushed	I/Crimped			Burrs		Instruct	ions Incomplete/	/Unclear	Part Lost/Mi	ssing	Wrong Stock Pulled
[Cuffs				Contamination]Mainte	nance		Part Moved		
	Heat Tr	eat			Countersink		Mislabe	led		Positioned V	Vrong	_
	Inspecti	on Strip in	Tube		Cut Too Short		Misread	!		Power Loss/	Surge	Other

Offset

Out of Calibration

Out of Sequence

Outside Dimensions

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

Drill Holes

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

DART AEROSPACE LTD	Work Order:	107000
Description: Spacer Bushing	Part Number:	D2327-1
Inspection Dwg: D2327 Rev: D		Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

X First Article Prototype

					/ 1: -	
Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.375	+/-0.010	.375			VERD	040.01
Ø0.257	+0.005/-0.000	.256 2.006			11	11
2.000	+/-0.010	2.006			ч	11
<u> </u>					* ************************************	· · · · · · · · · · · · · · · · · · ·
				·		
		2511				
			'			
-						

	PAG					· · · · · · · · · · · · · · · · · · ·
Measured by:	* 40 9-p^	Audited by:	B.a	DAS	Prototype Approval:	N/A
Date:	13/09/17	Date:	13/09/18	7 % 89	Date:	N/A

Rev	Date	Change	Revised by	Approved
Α	03.11.27	New Issue	KJ/RF	
В	06.11.24	Dwg Revision revised	KJ/JLM	
С	08.02.01	Tolerance revised for Ø0.375	KJ/EC/DD	1

										DQA:	Date	
NCR: Y	res / N)			WORK ORDER NON-C	CONF	ONFORMANCE / UPDATE				Date	•
					T							
Work Orde	er:				DISPOSITION			AGAINST DEF	PARTIVIENT	PROCESS		
Part N					Rework Scrap Use-as-is Work Order Update] 	Skid-tube Crosstube Machining Small Fab Thermoforming Finishing Large Fab Composite			Water Jet Prod. Eng. Coor. Rec/Store/Packaging Supplier		Engineering Quality Other
Root			Ī	Descri	ption of work order update	Init	tial	Action	n	Sign &		
Cause	Date	Step	Qty		or Non-conformance	Chief	f Eng	Descript	tion	Date	Verification	QC Inspector
Doc/Data		-			1					•		
Equip/Tooling						1						
Operator												
Material												
Setup												
Other]						
Process]						
Supplier											•	
Training												
Unapproved												
					F	AULT (CATE	GORY				
Landing Gear General												7
	Bendir	-			Bend		Grain			Ovalized		Pressure/Forced
	Centre Not Concentric to O/S				BOM/Route		Hardware			Over/Under	tolerance	Temperature/Cure
	Cracks				Broken/Damaged		Inspection Incomplete			Part Incorred	⊢	Weld
	Crushed/Crimped				Burrs	In:	Instructions Incomplete/Unclear			Part Lost/Mi	Wrong Stock Pulled	
	Cuffs				Contamination	\vdash	Maintenance			Part Moved		·
	Heat Treat				Countersink		Mislabeled			Positioned W		-
	Inspec	tion Strip ir	1 Tube		Cut Too Short		Misread			Power Loss/S	Surge	Other
	Ripples in Bend				Drill Holes	Of	Offset					

Out of Calibration

Out of Sequence

Outside Dimensions

Drawing

Finish

Folio

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G

Turning Sequence

Wave/Twist in Tube

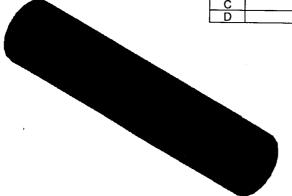
Ripples in Bend

Torque Waves in Extrusion

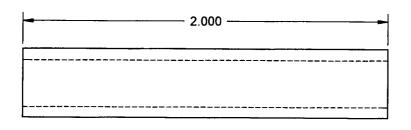


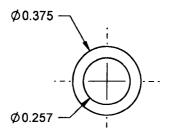
DESIGN BW	DRAWN BY	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA					
CHECKED	APPROVED	DRAWING NO. D2327	REV. D SHEET 1 OF 1				
DATE 06	5.10.12	TITLE SPACER BUSHING	SCALE 2:1				
DEV	DATE	DECODURTION					

DESCRIPTION 94.12.17 Α **NEW ISSUE** LENGTH CHANGE 303 SS SPEC ADDED REMOVE 303 SS MATERIAL В 95.12.06 C 03.05.13 06.10.12

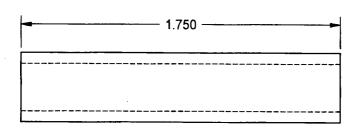


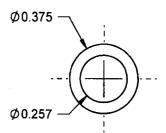
RELEASE





D2327-1 SPACER BUSHING





D2327-3 SPACER BUSHING

NOTES:
1) MATERIAL: AISI 304/316 SS, Ø0.375, 0.065 WALL SEAMLESS ROUND TUBING (REF. DART SPEC M304TR0.375W.065)

∕⋻∖

- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED 4) ALL DIMENSIONS ARE IN INCHES UNLESS OTHERWISE NOTED
- 5) BREAK ALL SHARP CORNERS TO 0.010 MAX

									DQA:	Date:	. 13		
NCR: Y	'es / No			*	WORK ORDER NON-O	CONFORI	MANCE / UP	DATE					
									QA Closed:	Date:			
Work Orde	ri.				DISPOSITION	l	AGAINST DEPARTMENT/PROCESS						
Part N			,		Rework Scrap Use-as-is	Scrap Machining Small Fab		Crosstube Small Fab Finishing	Water Jet Prod. Eng. Coor. Rec/Store/Packaging		Engineering Quality Other		
NCR N	lo	·, · · · · · · · · · · · · · · · · ·			Work Order Update Large Fab Composite			Composite					
Root				Descri	ption of work order update	Initial	Ac	tion	Sign &				
Cause	Date	Step	Qty	(or Non-conformance	Chief Eng	Desc	ription	Date	Verification	QC Inspector		
Doc/Data													
Equip/Tooling													
Operator													
Material					•								
Setup													
Other													
Process		1											
Supplier													
Training					• • • • • • • • • • • • • • • • • • • •								
Unapproved					•								
					F.	AULT CATE	GORY						
Landir	ng Gear				General				_		_		
	Bending				Bend	Grain	Grain				Pressure/Forced		
	Centre Not Concentric to O/S				BOM/Route	Hardwa	Hardware			tolerance	Temperature/Cure		
•	Cracks				Broken/Damaged	Inspect	Inspection Incomplete			ct 🖅 📗	Weld		
	Crushed/Crimped				Burrs	Instruct	Instructions Incomplete/Unclear			issing	Wrong Stock Pulled		
	Cuffs				Contamination	Mainte	Maintenance			-	-		
	Heat Treat				Countersink	Mislabe	Mislabeled			Vrong			
	Inspection Strip in Tube				Cut Too Short	Misread	Misread			Surge	Other		
	Ripples in Bend				Drill Holes	Offset	Offset						

Out of Calibration

Out of Sequence

Outside Dimensions

Drawing

Finish

Folio

Turning Sequence

Wave/Twist in Tube

Ripples in Bend

Torque Waves in Extrusion

H:/FORMS/Quality Assurance\approved QA/NCRWO Rev G